ABSTRACT OF THE DISCLOSURE

A copper polish slurry, ~~useful in the manufacture of integrated circuits~~ generally, ~~and~~ for chemical mechanical polishing of copper and copper diffusion barriers ~~particularly,~~ may be formed by combining a chelating, organic acid buffer system such as citric acid and potassium citrate; and an abrasive, such as for example colloidal silica. Alternative copper polish slurries, in accordance with the present invention, may be formed by further combining an oxidizer, such as hydrogen peroxide, and/or a corrosion inhibitor such as benzotriazole. Advantageous properties of slurries in accordance with the present invention include the enhancement of Cu removal rates to >3000 angstroms per minute. This high polish rate is achieved while maintaining local pH stability and substantially reducing global and local corrosion as compared to prior art copper polish slurries. Local pH stability provides for reduced within-wafer non-uniformity and reduced corrosion defects. Furthermore, copper diffusion barriers such as tantalum or tantalum nitride may also be polished with such slurries wherein the oxidizer is not included.